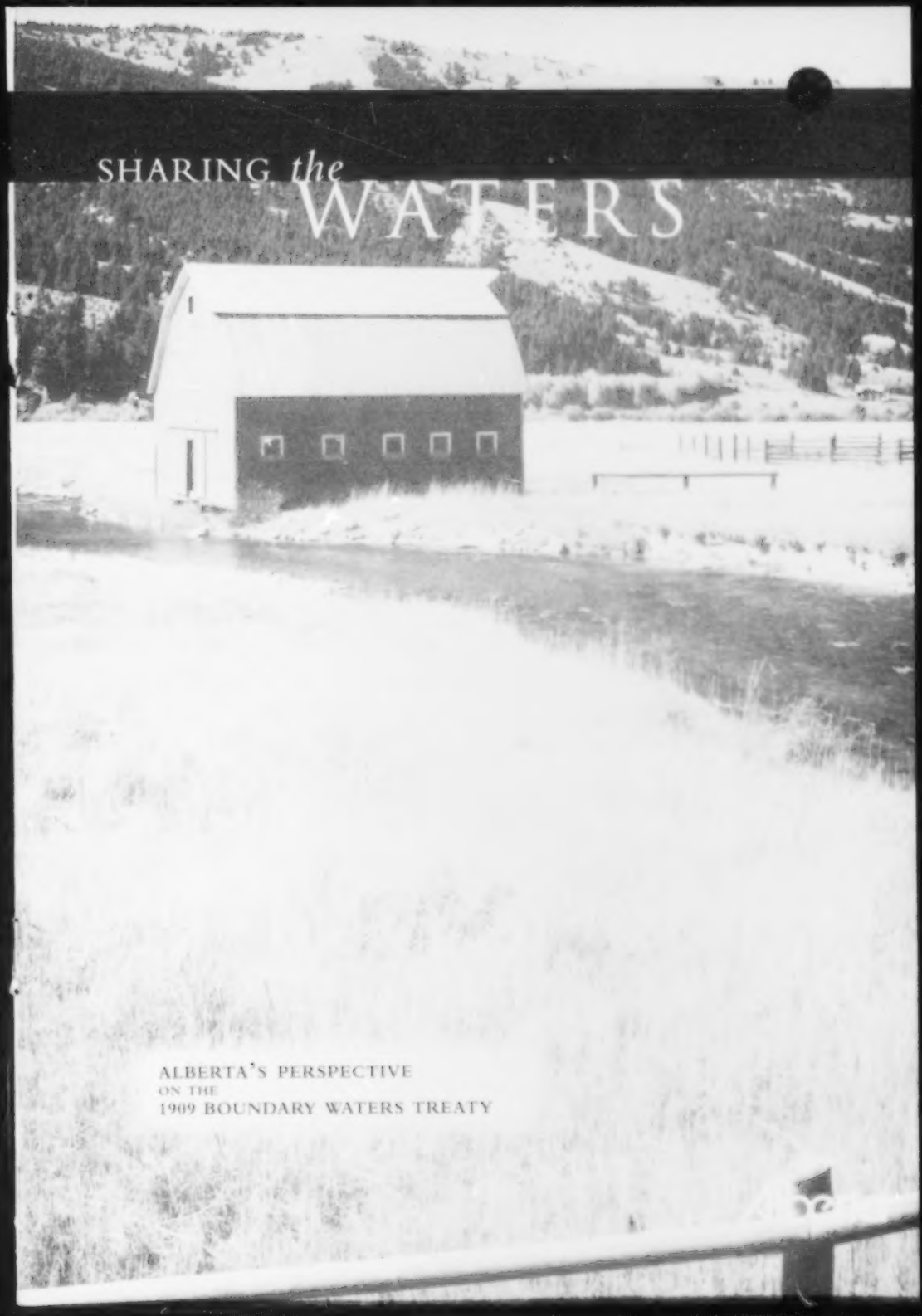
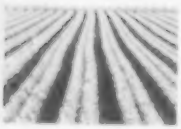


SHARING *the* WATERS

ALBERTA'S PERSPECTIVE
ON THE
1909 BOUNDARY WATERS TREATY



HISTORY

In 1909, Canada and the United States signed the Boundary Waters Treaty to provide the principles and mechanism for preventing and resolving disputes concerning water quantity and quality along the border. The Treaty also established an International Joint Commission (IJC), with three members from each country, to help resolve disputes.

Article VI of the Treaty deals with how the waters of the St. Mary and Milk Rivers in Southern Alberta (including the Battle Creek, Lodge Creek and Frenchman River, tributaries of the Milk River that originate in the Cypress Hills) are to be shared between Canada and the United States.

Following the signing of the Treaty, the two countries could not agree on the interpretation of Article VI. So the IJC held hearings across Canada and the U.S. from 1915 to 1921 to gather recommendations and suggestions on how to measure and apportion these waters.

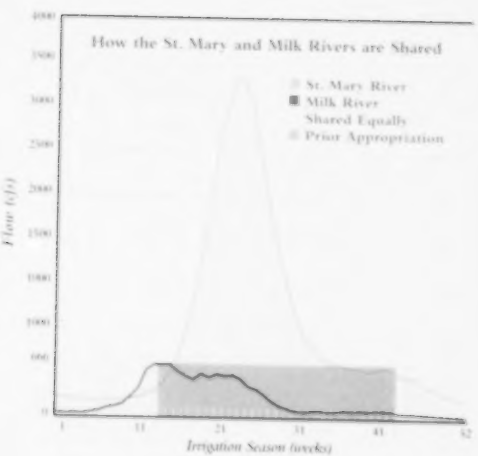
In 1921, the IJC issued an Order establishing a set of rules under which the measurement and apportionment of water from the St. Mary and Milk Rivers would be made by an Accredited Officer from each country.

The 1921 Order

The rules established by the 1921 IJC Order for sharing the waters are based on flow volumes and seasons. The IJC Order also established that apportionment was to be carried out at the International Boundary, and provided a prior appropriation, not subject to equal sharing, from the St. Mary River to Canada and from the Milk River to the United States. The prior appropriation in part reflects water use by the two countries prior to the Treaty, and was consistent with the water allocation principle of *"first in time, first in right"* which was being applied in both the American and Canadian west at that time.

The Order also clarified the practical approach Treaty negotiators had to sharing prior appropriations. Recognizing the impracticality of forcing each country to wait until the other got its full appropriation, each country was allowed 25 per cent of the water, even at low flows.

Because Canada had already allocated most of the water from the St. Mary and the U.S. had significant allocations from the Milk, the Treaty and the IJC Order allowed Canada, during the irrigation season, a prior appropriation of three-quarters of the St. Mary up to 666 cubic feet per second (cfs). The U.S. received the same during the irrigation season for the Milk. All flows outside the irrigation season and above these prior appropriations were shared equally. The St. Mary has a flow greater than 666 cfs more often than the Milk, so Canada's prior appropriation is less likely to fall short.



HISTORY *(continued)*

A Strong Working Arrangement

Based on the rules of the 1921 Order, Canada and the U.S. successfully share the waters of the Milk and St. Mary. Accredited Officers and Field Officers from each country measure the flow in each river and on a monthly basis calculate each country's entitlement. If there are shortfalls, Montana and Alberta are notified so they can be remedied in the subsequent month. At the end of each year the Accredited Officers sign off a report to the IJC confirming that the Order was implemented properly.

Because of variability of river flows and the need for investment to capture, store and use water from each river, neither country can take and use its entire share of the water. This results in more water passing downstream than is required.

Alberta has developed the storage and canal capacity to capture and divert just seven per cent of its entitlement on the Milk River. The rest flows unused to the U.S. As a result, the U.S. receives 147 per cent of its Milk River entitlements. The U.S. has not developed the capacity to capture and divert the St. Mary River. The U.S. only uses 62 per cent of its entitlements and Canada receives 128 per cent of its entitlements on the St. Mary.

The following table illustrates how each country receives excess flows, over and above entitled flows. This is due primarily to the inability of each country to capture excess flow during snowmelt runoff or flooding events.

Table I

Summary of Entitlements and Flows Actually Received by Canada and U.S. in acre feet. (1950-2002)
Note: does not include winter flows for the Milk River and Eastern Tributaries which flow undiminished to the U.S.

	St. Mary River	Milk River	Lodge Creek	Battle Creek	Frenchman River	Total
Average U.S. entitlements	268,388	77,853	12,336	12,989	32,705	404,272
Average flow received by U.S.	166,485	114,721	17,615	17,320	49,346	365,488
Entitlement as a per cent of total flow	40.97	66.38	50.00	50.00	50.00	45.50
Per cent of entitlement received	62.03	147.36	142.80	133.34	150.88	90.41
Average Can. entitlements	386,766	39,428	12,336	12,989	32,705	484,224
Average flow received by Can.	495,247	2,845	7,057	8,767	16,062	529,978
Entitlement as a per cent of total flow	59.03	33.62	50.00	50.00	50.00	54.50
Per cent of entitlement received	128.05	7.22	57.21	67.49	49.11	109.45

WATER MANAGEMENT IN ALBERTA

Infrastructure

Based upon the certainty provided by the 1921 Order, Alberta has made significant investments to store, convey and deliver water for farms, industry and power generation. This includes a system of diversion canals, storage reservoirs (both on-stream and off-stream) and irrigation canals.

Irrigation Development

Irrigation development in Alberta, predominantly all located in southern Alberta's South Saskatchewan River Basin, exceeds 1.6 million acres and represents two-thirds of all irrigation development in Canada,. About 1.3 million acres are located in 13 organized irrigation districts and some 300,000 acres are in private irrigation developments.

The Southern Tributary Rivers (Waterton, Belly and St. Mary Rivers) provide the water needs of eight irrigation districts that serve a total of 565,809 acres, plus the 25,000-acre Blood Tribe Irrigation Project and more than 21,000 acres of private irrigation.

In the irrigation districts there are 38 off-stream reservoirs, with live storage capacity ranging from a few hundred to 260,000 acre-feet. Combined, the live storage capacity of these reservoirs is nearly one million acre-feet. (An acre-foot is the amount of water required to cover an acre of land to a depth of one foot).

The St. Mary Project

Development of the St. Mary Project (SMP) was the earliest implementation of a major irrigation system in southern Alberta. With initial construction in the late 1890's and water delivery to what is known as the (western block) of the St. Mary River Irrigation District (SMRID) in 1900.

Today, the SMP is comprised of four irrigation districts: Magrath, Raymond, the St. Mary River and Taber. These districts are served by a 283 km (176 mile) long main carrier canal, which can carry 3,200 cfs at the start of the system to 360 cfs near Medicine Hat. Two hydro power plants located on this canal have a total electricity generating capacity of about 30 megawatts. A seven megawatt plant is being commissioned on the canal near the town of Raymond.

Approximately 2,400 km (1,500 miles) of canals and pipelines, plus 18 off-stream reservoirs convey water to more than 2,000 irrigation water users irrigating about 524,000 acres of land, 15 to 20 recreational areas, several rural municipalities, industry and various other uses. The total replacement cost for the SMP infrastructure is estimated at about $923 million.

Currently, SMP district irrigation producers are applying sufficient irrigation water to satisfy 75 to 100 per cent of optimum crop requirements, with an average application of about 84 per cent. This average is expected to increase to about 90 per cent over the next 10 to 15 years.

WATER MANAGEMENT IN ALBERTA (CONTINUED)

The St. Mary Project (continued)

Irrigation producers in the St. Mary and Taber Irrigation Districts, where approximately 87 per cent of the irrigated land is located, currently use approximately 1.10 acre-ft of water per acre.

Approximately 93,000 acres of specialty crops were grown in this region in 2003, including 30,000 acres of potatoes, 14,000 acres of sugar beets and 33,000 acres of dry beans.

Water is delivered through irrigation district canals and pipelines to more than 15 rural communities with an estimated total population of 20,000. Another 17,000 people have water user or water co-operative agreements with irrigation districts.

A Sustainable Supply Throughout the Province

Alberta is committed to the wise and productive use of water and has actively developed its infrastructure across the entire province. In the past 15 years Alberta has increased storage capacity in the South Saskatchewan River Basin by about 500,000 acre-feet through projects such as the Oldman River Dam, Pine Coulee Reservoir, Clear Lake and Twin Valley Reservoir. Under the framework of Alberta's Water for Life strategy, the province will explore additional opportunities for development of storage as a tool in securing water supplies.

Rehabilitation and Increasing Efficiency

Rehabilitation of the irrigation infrastructure, combined with improvements to on-farm irrigation systems, have resulted in significant improvements in water use efficiency throughout the irrigated areas of southern Alberta.

The Irrigation Rehabilitation Program, initiated in 1968, has improved over 50 per cent of the more than 7,600 km (4,700 miles) of irrigation district conveyance works. The infrastructure has a 2003 replacement value of $2.5 billion.

To date, the combined rehabilitation contribution of the Government of Alberta and irrigation district water users totals approximately $665 million. The four districts of the St. Mary Project have invested approximately 40 per cent of the total irrigation district contribution.

Rehabilitation of provincially-owned water management infrastructure throughout Alberta is currently being funded at about $30 million per year. The recent rehabilitation of the St. Mary Spillway cost more than $40 million.

Infrastructure rehabilitation and improved on-farm irrigation have significantly reduced canal seepage and evaporation from an estimated 15 per cent to about 5 to 7 per cent, and soil salinity from 18 per cent to 1 to 2 per cent. Irrigation return flows have also been reduced from 25 to 35 per cent to about 16 per cent.

Irrigation producers in this region have invested approximately $250 million in irrigation equipment over the past 15 years. This does not include land or water right acquisition costs, or the additional capital investment associated with specialized irrigation farming.

On-farm irrigation efficiency has increased from 36 per cent in 1965 to 74 per cent in 2000. Irrigation producers continue to shift to more efficient, lower energy, low-pressure centre pivot sprinkler systems.

Managing Demand

Alberta recognizes that the demand for water will continue to increase. Alberta is working hard to manage water demand by using existing supplies more efficiently, rather than constantly searching for new supplies.

No More Allocations Allowed on the St. Mary or Milk Rivers

All of the water apportioned to Canada (Alberta) based on the Treaty and the 1921 Order has been allocated within Alberta. No more water allocations are being granted on the St. Mary River in Alberta. Alberta has introduced water transfers to allow water allocations to be traded as new demands develop.

Most of the runoff for the Milk River occurs prior to the irrigation period in Canada, and Canada has been unable to fully use its entitlement. During the summer of 1986 when water allocations reached 70 per cent of the median volume of Canada's share of the flows of the Milk, Alberta put a moratorium on any further irrigation allocations within the basin. No more water allocations are being granted on the Milk in Alberta. At least two irrigation projects have been cancelled for non-use, with no re-allocation of this water.

Canada and Alberta fully recognize the rights of the U.S. to the waters of the St. Mary and Milk Rivers as allocated under the 1921 Order. Alberta will continue to honour these rights, recognizing that to date the U.S. has been unable to take its full entitlements from the St. Mary River.

Emphasis on Conservation

Water is a finite resource. The limit of water has been reached in a number of watersheds and is being approached in others. Consequently, the Government of Alberta has created and implemented a provincial water strategy called *Water for Life: Alberta's Strategy for Sustainability.*

Water for Life outlines actions for all Albertans and sectors of the provincial economy to take to ensure a healthy and sustainable water supply for the environment, for communities and for economic well-being.

Alberta is committed to lead in conservation and efficient and effective water use. A key water conservation goal under Alberta's water strategy is to increase the overall efficiency and productivity of all water use by 30 per cent.

WORKING RELATIONSHIPS

Based on the 1921 Order, Alberta has agreements with other Canadian jurisdictions on sharing the waters that rise and/or flow through Alberta. Under the terms of the 1969 Master Agreement on Apportionment, Alberta is required to pass 50 per cent of the flow of streams originating in or entering Alberta on to Saskatchewan, including the South Saskatchewan River, which is supplied by the St. Mary River. As a result of the 1909 Boundary Waters Treaty and the 1969 Master Agreement, Alberta is required to pass 75 per cent of the flow of the Lodge and Battle Creek tributaries of the Milk River to Saskatchewan.

Saskatchewan is required to pass 50 per cent of the flow originating in or entering Saskatchewan on to the province of Manitoba.

Addressing Issues within the Framework of The Order

Past issues have been dealt with fairly and equitably through the processes in place under the Order. There is no reason to believe this cannot continue.

The 2001 *Letter of Intent To Better Utilize The Waters of The St. Mary and Milk Rivers* and the recently established Eastern Tributaries Working Group and Milk River Working Group (with representation from Montana and Alberta) are excellent examples of how the two countries and area stakeholders have come together to solve problems.

Computational problems in measurement and apportionment are addressed directly through the Accredited Officers within the terms of the Order. The Order is flexible enough to allow these types of issues to be addressed through cooperative working arrangements, now and in the future.

ECONOMIC BENEFITS

Planning and development activities can best be carried out under the stable conditions created by the 1921 Order. Long-term planning and development are necessary to make beneficial use of the waters of these rivers.

Economic Impact of Irrigation in Southern Alberta

Irrigation brings stability to agricultural production and increases land productivity by 300 per cent or more compared to dryland production. Total agricultural benefits resulting from irrigation exceed $5 billion and more than 13,000 full-time jobs. At least 40 per cent of these benefits result from the irrigation development within the St. Mary Project.

Without irrigation development, the regional population would be reduced by an estimated 65 to 75 per cent.

Thirteen per cent or more of the regional gross domestic product, 19 per cent of regional production and 30 per cent of regional employment opportunities in southern Alberta are directly or indirectly associated with irrigated agriculture.

Other Uses

The irrigation water distribution and management infrastructure supports the water needs of about 42,000 residents in 50 municipalities and 12 major industrial users.

At least 40 industries, employing more than 4,000 people use water from southern Alberta's irrigation districts.

Almost 35 per cent of the of the province's gross domestic product in processing industries is directly tied to irrigated production. Agro-processing adds more than 2.66 times the value to farm products in the irrigation areas of southern Alberta, compared to dryland regions of Alberta, based on agro-processing shipments versus farm receipts.

Almost 90 irrigation-supported water bodies in southern Alberta provide recreational activities that include boating, fishing, swimming and water skiing. There are seven provincial parks, 26 municipal parks and 13 day-use recreational areas on or near irrigation reservoirs. Total user-days are about 400,000 each year. Tourists spend about $2 million each year on water-based recreation in southern Alberta. The monetary impact of recreational activities on the regional economy has been estimated at about $29 million each year.

More than 20 irrigation reservoirs provide an estimated 250,000 angler-days of recreational fishing and yield more than 300 tons of commercial fish annually valued at about $500,000.

More than 87,000 acres of wetland habitat have been created or enhanced as a result of irrigation development in southern Alberta.

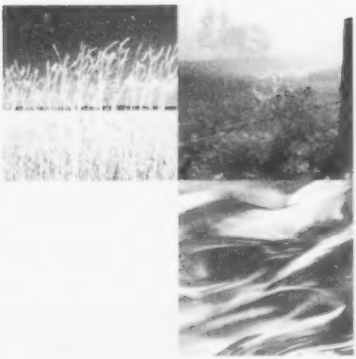
CONCLUSION

The Boundary Waters Treaty and the 1921 Order of the International Joint Commission are the framework under which co-operation and mutual understanding between Canada and the United States have flourished since 1909.

The Treaty and Order provide stability and certainty needed for both countries to undertake long-term planning, development and investment in infrastructure for the most beneficial use of these rivers. If either the Treaty or Order is reopened, that certainty is lost, and planning and investment stop.

In the 1921 Order our predecessors worked to achieve an acceptable balance between competing demands. Alberta seeks to build on these mutual efforts of the past, within the co-operative spirit of the Order.

Notes:



SHARING *the* WATERS

ALBERTA'S PERSPECTIVE
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1909 BOUNDARY WATERS TREATY

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More information, including the text of the Boundary Waters Treaty, the 1921 Order and other background documents, is available on the IJC's website at: www.ijc.org

Alberta

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Text, History and Geography of the 1909 Boundary Waters Treaty and the 1921 Order of the International Joint Commission

A supplement to *Sharing the Waters*

July 2004

Alberta

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THE BOUNDARY WATERS TREATY

Canada and the United States signed the Boundary Waters Treaty in 1909 to provide the principles and mechanism for preventing and resolving disputes concerning water quantity and quality along the entire border. Article VI dealt specifically with the St. Mary and Milk Rivers as follows:

The High Contracting Parties agree that the St. Mary and Milk Rivers and their tributaries (in the State of Montana and the Provinces of Alberta and Saskatchewan) are to be treated as one stream for the purpose of irrigation and power, and the waters thereof shall be apportioned equally between the two countries, but in making such equal apportionment more than half may be taken from one river and less than half from the other by either country so as to afford a more beneficial use to each. It is further agreed that in the division of such waters during the irrigation season, between the 1st of April and 31st of October, inclusive, annually, the United States is entitled to a prior appropriation of 500 cubic feet per second of the waters of the Milk River, or so much of such amount as constitutes ¼ of its natural flow, and that Canada is entitled to a prior appropriation of 500 cubic feet per second of the flow of the St. Mary River, or so much of such amount as constitutes ¼ of its natural flow.

The Channel of the Milk River in Canada may be used at the convenience of the United States for the conveyance, while passing through Canadian territory, of waters diverted from the St. Mary River. The provisions of Article II of this treaty shall apply to any injury resulting to property in Canada from the conveyance of such waters through the Milk River.

The measurement and apportionment of the water to be used by each country shall from time to time be made jointly by the properly constituted reclamation officers of the United States and the properly constituted irrigation officers of His Majesty under the direction of the International Joint Commission.

THE POSITIONS 90 YEARS AGO

Neither country could agree on how the Treaty was to be interpreted and implemented, specifically, how the waters were to be measured or apportioned. Canada's position was that prior allocations should subtracted from the total flow of the two rivers prior to their equal sharing, and river flow calculations should be based on the flow at the rivers' mouths.

The U.S. position was that prior allocations should be counted as part of each country's share of the total flow, with calculations based on total flow at the crossing of the international boundary.

SUMMARY OF THE RULES OF THE 1921 ORDER

The IJC held hearings across Canada and the U.S. from 1915 to 1921 to gather information to resolve these differences, and in 1921 issued an order with rules clarifying how the measurement and apportionment was to take place. Essentially agreeing with Canada's position, the IJC said that prior allocations could be excluded from being shared equally. Measurement should take place at the border, agreeing with the U.S. position. The 1921 rules can be summarized as follows:

1. *St. Mary River:*
   a. During the April 1 to October 31 Irrigation Season when the natural flow for the St. Mary River at the International Boundary is 666 cubic feet per second (cfs) or less, Canada is entitled to 75% of the flow of the St. Mary River and the U.S. to 25%.
   b. During the April 1 to October 31 Irrigation Season when the natural flow for the St. Mary River at the International Boundary is more than 666 cfs, Canada is entitled to a prior appropriation of 500 cfs, and any excess over 666 cfs shall be divided equally between Canada and the U.S.
   c. During the non-irrigation season the natural flow of the St. Mary River at the International Boundary shall be divided equally between Canada and the U.S.

2. *Milk River:*
   a. During the April 1 to October 31 Irrigation Season when the natural flow for the Milk River at the Eastern crossing of the International Boundary is 666 cfs or less The U.S. is entitled to 75% of the flow of the Milk River and Canada to 25%.
   b. During the April 1 to October 31 Irrigation Season when the natural flow for the Milk River at the Eastern Crossing of the International Boundary is more than 666 cfs, the U.S is entitled to a prior appropriation of 500 cfs, and any excess over 666 cfs shall be divided equally between Canada and the U.S.
   c. During the non-irrigation season the natural flow of the Milk River at the Eastern Crossing of the International Boundary shall be divided equally between Canada and the U.S.

3. *Eastern Tributaries of the Milk River (Lodge Cr., Battle Cr., and Frenchman River):*
   a. The natural flow of the eastern tributaries of the Milk River at the points where they cross the International Boundary shall be divided equally between Canada and the U.S.

4. *Waters not naturally crossing the boundary:*
   a. Each country shall be apportioned such waters of the St. Mary and Milk Rivers and of any tributaries that rise in that country but do not flow across the International Boundary.

THE GEOGRAPHY OF THE RIVERS

The St. Mary River originates in the high mountain and snowpack areas of western Montana which generate relatively large quantities of water, and flows north-east into Alberta. In Alberta, most of the area draining into the St. Mary is relatively arid and contributes little additional water to the river's total flow.

By comparison, the Milk River originates in the foothills of western Montana and relies primarily on spring and summer rains to generate much of its runoff. The river flows northeast and enters Alberta near Del Bonita, then swings due east across a very arid portion of southern Alberta before reentering eastern Montana.

As a result, in most years the Milk River at the Eastern Crossing of the International Boundary reaches its maximum flow in April-May and then drops off quite rapidly, often approaching zero by late July. Once it re-enters Montana the Milk River is joined by the eastern tributaries, which originate in the Cypress Hills of southeastern Alberta and southwestern Saskatchewan, and a number of large tributaries that drain the Bear Paw Mountains and the Little Rockies in eastern Montana. Due to the significant amounts of runoff contributed by these streams, the Milk River at its confluence with the Missouri River has a greater - and possibly even larger - flow than the St. Mary River has at its mouth.

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